



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------------|------------------|
| 10/765,531 | 01/27/2004 | Burn Jeng Lin | N1085-00225(TSMC2003-0656 | 1027 |
| 54657 | 7590 | 03/23/2007 | EXAMINER | |
| DUANE MORRIS LLP IP DEPARTMENT (TSMC) 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103-4196 | | | ROSASCO, STEPHEN D | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1756 | |
| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE | | |
| 3 MONTHS | 03/23/2007 | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

S

| | | | |
|------------------------------|-----------------------------|------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/765,531 | LIN ET AL. | |
| | Examiner Stephen Rosasco | Art Unit 1756 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 28 December 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-25 is/are pending in the application.
 - 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 9-25 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

In response to the Remarks of 12/28/06 the examiner withdraws the previous office action rejections and includes a new rejection here over newly cited art.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Libby et al. (7,094,312) in view of Nakasuji et al. (20020028399).

The claimed invention is directed to a mask processing system comprising:
means for receiving a mask or reticle substrate according to a predetermined reference system; means for determining an offset angle of a feature to be processed on the mask or reticle substrate with regard to either a horizontal or vertical reference direction of the predetermined reference system; means for rotating the mask or reticle substrate in a predetermined direction by the offset angle; and means for processing the feature on the mask or reticle substrate according to the predetermined reference system wherein the feature is processed in either the horizontal or vertical reference direction thereof.

The applicant discusses the limitations of the prior art in that due to the tool limitations, most critical layout patterns are oriented in horizontal or vertical reference directions, and only patterns of relaxed dimension are allowed to be obliquely oriented. And that it has been a difficult task to craft oblique critical patterns on a mask.

Libby et al. teach (see claims) a charged particle beam system for milling and imaging a work piece, the system comprising: a work stage assembly adapted a) for supporting the workpiece, b) for translating the workpiece along a first axis, c) for translating the workpiece along a second axis perpendicular to the first axis, and d) for rotating the workpiece about a third axis perpendicular to both the first axis and the second axis, said work stage assembly having a work stage axis substantially parallel to the third axis, and the work stage assembly not being tilttable about the first axis or the second axis; a first charged particle beam source for interacting with the work piece, said first charged particle beam source having a first charged particle beam source axis, the first charged particle beam source axis oriented at an acute angle with either said first axis or said second axis; a second charged particle beam source for interacting with the work piece, said second charged particle beam source having a second charged particle beam source axis oriented to form an acute angle with either said first axis or said second axis; and said first and second charged particle beam sources being arranged such that one of the charged particle beam sources can be used to mill the workpiece and the other charged particle beam source can be used to image the workpiece without offsetting the work stage axis.

Libby et al. also teach that the work stage assembly is adapted to allow rotating about the third axis by more than twenty-five degrees.

The teachings of Libby et al. differ from those of the applicant in that the applicant teaches that the system has means for inspecting the mask for defects.

Nakasuji et al. teach (see claims) an inspection apparatus for inspecting a sample for defects, comprising: a charged particle irradiation means capable of irradiating primary charged particles against said sample; a projecting means for projecting secondary charged particles emanated from said sample by the irradiation of said primary charged particles so as to form an image; a detection means for detecting an image formed by said projecting means as an electron image of said sample; and a defect evaluation means for determining a defect in said sample based on an electron image detected by said detection means, wherein electrons having energy lower than that of said primary charged particles are supplied to said sample at least while said detection means is detecting said electron image.

It would have been obvious to one having ordinary skill in the art to take the teachings of Libby et al. and combine them with the teachings of Nakasuji et al. in order to make the claimed invention because it is well known in the art to inspect masks for defects and repair them.

Applicant's arguments with respect to claims 9-25 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 1756

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Stephen Rosasco whose telephone number is (571) 272-1389. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. The Examiner's supervisor, Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Rosasco
Primary Examiner
Art Unit 1756

S.Rosasco
03/16/07